Remarks

Claims 28-47 are currently pending in this Application. Claims 28-47 stand rejected. It is respectfully submitted that the claims define allowable subject matter.

Claims 28, 30, 32, 34, 35, and 37 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,674,879 (Weisman) in view of U.S. Patent Publication No. 2003/0234876 (Bloom) Claim 29 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman and Bloom in view of U.S. Patent No. 5,954,653 (Hatfield). Claim 31 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman and Bloom in view of U.S. Patent No. 4,887,306 (Hwang). Claim 33 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman and Bloom in view of U.S. Patent No. 6,879,988 (Kamath). Claim 36 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman and Bloom in view of U.S. Patent No. 5,322,067 (Prater). Claims 38, 40, 42, and 44-46 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman and Bloom in view of Kamath. Claim 39 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman, Bloom, and Kamath in view of Hatfield. Claim 41 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman and Kamath in view of Hwang. Claim 43 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman in further view of Kamath in view of Examiner's Official Notice. Claim 47 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Weisman, Bloom, and Kamath in view of Prater. Applicant traverses these rejections for at least the reasons set forth hereafter.

With respect to independent claim 28, Applicant maintains the previous arguments that Weisman and Bloom both individually fail to describe filtering a processed data stream with a first value set of speckle reduction parameters to produce a first image data stream, and filtering the processed data stream with a second value set of speckle reduction parameters to produce a second image data stream, wherein the second value set of speckle reduction parameters is different than the first value set, as recited by claim 28. Because Weisman and Bloom each individually fail to describe one or more elements of claim 28, it follows that a combination of Weisman and Bloom cannot describe such element(s). Accordingly, claim 28 is submitted to be patentable over Weisman in view of Bloom for at least this reason.

Moreover, on page 2, the outstanding Final Office Action asserts that Applicant's previous arguments "are not persuasive because applicant argues the references separately." Specifically, "[t]hese arguments are not persuasive because in a 103 rejection the reference are not considered individually but for what they teach in combination." (See page 2 of the outstanding Final Office Action). However, if neither reference teaches an element of claim 28, a combination of the references cannot teach the missing element. Notwithstanding such an argument, Applicant submits that there is no legitimate reason to combine Weisman with Bloom. The rejection of claim 28 under Weisman in view of Bloom therefore does not set forth a prima facie case of obviousness.

Weisman describes and illustrates a quad display of a captured echocardiogram raw data image, a speckle reduced image, an edge detected image, and a color quantization image. The speckle reduced image is generated by applying speckle reduction parameters to the raw image. The default speckle reduction is performed using moderate speckle reduction parameters, but light or heavy speckle reduction parameters may be chosen instead of moderate. The edge detected image and the color quantization image are generated from edge detection and color quantization parameters, respectively, that are applied to the speckle reduced image.

Bloom describes a system and method for generating multiple processed images from a single captured image generated by an electronic imaging device, such as a digital camera. In one embodiment, a digital camera includes multiple sets of operating parameters. For each image captured by the digital camera as raw data, the data is processed according to each parameter set prior to compression, storage in temporary memory, and ultimate upload onto a computer or other permanent storage device. Bloom describes processing the images captured by the digital camera for contrast, tone mapping, sharpness, and illuminant correction. Nowhere does Bloom describe the filtering process of speckle reduction, as conceded by the Office.

The outstanding Final Office Action asserts that "[a]pplying Bloom to Weisman would result in apply more than one of the speckle reduction filters in Weisman to the image and simultaneously displaying the differently filtered versions to the user so that they can select the best filtered image." (See page 3 of the outstanding Final Office Action). But, there is no legitimate reason to combine Weisman with Bloom as asserted by the outstanding Final Office

Action. Weisman is concerned with diagnostic ultrasound imaging, or echocardiography, to evaluate the condition of the heart. Weisman describes that "it is desired to provide a user-friendly echocardiography workstation that improves image quality, provides automatic edge detection, quantitates endocardial wall movement, corrects for cardiac translation, calculates 3-D left ventricle volume, and assists the physician with the interpretation of echocardiograms." (See column 2, lines 35-42 of Weisman). In contrast, Bloom is merely concerned with digital still photography using a conventional digital camera. The digital camera 200 disclosed by Bloom is not capable of producing ultrasound images of the heart, much less images of any other internal volume of the body and/or using any other type of imaging for producing images of internal volumes of the human body. While an ultrasound system includes a relatively large amount of processing power to process relatively large sets of ultrasound image data, a conventional digital camera such as that disclosed by Bloom has limited processing power and is not capable of processing the relatively large sets of ultrasound data. Rather, the digital camera 200 of Bloom merely takes still photographs of external objects. Bloom is therefore not analogous art to Weisman. One skilled in the art would not look to a conventional digital camera that takes still photographs to improve upon an echocardiography workstation.

Further, in the Background of the Invention, Weisman states that "speckle noise and poor resolution can compromise the clinical utility of images of any patient produced by even the most sophisticated ultrasound scanners." (See column 1, lines 39-45 of Weisman). Weisman is concerned with techniques for reducing speckle noise while preserving and enhancing the integrity of the myocardial borders and other cardiac structures. (See column 1, lines 53-57 of Weisman). In other words, the speckle reduction of Weisman is used to increase the viewability of diagnostically relevant images to preserve the clinical utility of such images. In contrast, Bloom is concerned with the variance in picture quality based on exposure conditions. (See page 1, paragraph [0002] of Bloom). Bloom does not even describe the filtering process of speckle reduction. The filtering processes described by Bloom, namely processing the images captured by the digital camera 200 for contrast, tone mapping, sharpness, and illuminant correction, bear no relevance to speckle reduction or increasing the viewability and clinical utility of diagnostically relevant images. Rather, the filtering processes described by Bloom are merely used to allow a user to select the most aesthetically pleasing image. One skilled in the art would

not look to the filtering processes of Bloom for techniques that reduce speckle noise and/or increase the viewability and clinical utility of a diagnostically relevant image.

Moreover, on page 5, the outstanding Final Office Action asserts that it would be obvious to combine Weisman and Bloom "for the purpose of allowing the operator to choose the best speckle-reduced image." But, the filtering processes described by Bloom would not help an operator to choose the best speckle-reduced image. Rather, the filtering processes described by Bloom bear no relevance to reducing speckle noise. Accordingly, the multiple processed images displayed by Bloom would not instruct one skilled in the art to apply different levels of speckle reduction to the same raw image. No legitimate reason has therefore been provided for combining Weisman with Bloom and thus the outstanding Final Office Action has not set forth a prima facie case of obviousness.

Applicant further submits that Weisman teaches away from the combination with Bloom asserted in the outstanding Final Office Action. More particularly, Applicant submits that Weisman teaches away from simultaneously co-displaying on a common screen a first speckle-reduced image that is generated from the first image data stream and a second speckle-reduced image that is generated from the second image data stream, as is also recited by claim 28. The edge detected and color quantization images displayed along with the speckle reduced image of Weisman are both generated from the speckle reduced image. Therefore, the edge detected and color quantization images each include the same speckle reduction parameters as the speckle reduced image. Weisman therefore teaches away from the multiple processed images displayed by Bloom. For example, rather than applying different speckle reduction parameters to the same raw image and selecting the best one therefrom, Weisman explains that "once the above [speckle reduction] filtering is applied to the video sequences and the image is captured at step 200, it is determined by the user whether or not to proceed with further processing" before applying the edge detection and color quantization filters. (See column 8, lines 26-28 of Weisman). In other words, rather than comparing differently speckle reduced images, Weisman describes applying further speckle reduction to the already speckle reduced images. In contrast to providing different levels of picture quality, the raw data image, speckle reduced image, edge detected image, and color quantization image of Weisman are co-displayed to present the operator with different images of cardiac function.

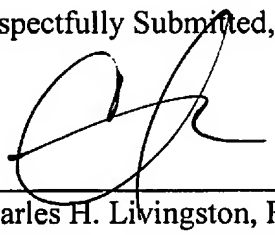
For at least the reasons set forth above, claim 28 is submitted to be patentable over Weisman in view of Bloom.

Independent claims 36, 37, 38, 46, and 47 are submitted to be patentable over the cited references for at least the reasons set forth above with respect to independent claim 28. The secondary references fail to make up for the deficiencies of Weisman and Bloom at least with respect to the independent claims. For example, none of Hatfield, Hwang, Kamath, and Prater describe filtering a processed data stream with a first value set of speckle reduction parameters to produce a first image data stream, and filtering the processed data stream with a second value set of speckle reduction parameters to produce a second image data stream, wherein the second value set of speckle reduction parameters is different than the first value set. For at least the reasons set forth above, independent claims 36, 37, 38, 46, and 47 are each submitted to be patentable over the cited references.

Turning to the dependent claims, Applicant submits that dependent 29-35 and 39-45 each contain further recitations that are not anticipated or rendered obvious by the cited references. Additionally, claims 29-35 and 39-45 depend from claims 28 and 38, respectively. Consequently, because claims 28 and 28 each define allowable subject matter, claims 29-35 and 39-45 also define allowable subject matter.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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